

REMARKS

Applicants submit this Amendment and Appendix in reply to the Office Action mailed March 26, 2003.

As an initial matter, Applicants affirm the election of Group I, claims 1-5, without traverse.

In this Amendment, Applicants have amended the specification and drawings, and added new claim 9.

Before entry of this Amendment, claims 1-8 were pending in this application. After entry of this Amendment, claims 1-9 are pending in this application.

The originally-filed specification, claims, abstract, and drawings fully support the amendments to the specification and drawings, as well as new claim 9. No new matter was introduced.

In the Office Action, the Examiner objected to the drawings and the specification for minor informalities. Applicants file herewith a Submission of Corrected Drawings that correct the informalities in Figs. 1 and 3 as suggested by the Examiner and amend Figs. 7-10 to include the term --PRIOR ART--. Applicants have also amended the title to read -- MOLDED OPTICAL ELEMENT AND MOLDING METHOD-- and amended the specification to reference Figs. 6 and 7. Accordingly, Applicants respectfully request that the Examiner approve the corrected drawings and withdraw these objections.

In the Office Action, the Examiner rejected claims 1 and 3-5 under 35 U.S.C. § 102(b) as being anticipated by Meyers (U.S. Patent No. 5,543,966), rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Meyers in view of Maruyama (U.S. Patent No. 5,978,140), rejected claims 1 and 3-5 under 35 U.S.C. § 103(a) as

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being unpatentable over Nisper et al. (U.S. Patent No. 5,538,674) ("Nisper") in view of Ueda et al. (U.S. Patent No. 6,215,591) ("Ueda"); and rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Nisper in view of Ueda and further in view of Maruyama. Applicants respectfully traverse these rejections as follows.

The Examiner rejected claims 1 and 3-5 under 35 U.S.C. § 102(b) as being anticipated by Meyers. For anticipation under 35 U.S.C. §102, the reference must teach every aspect of the claimed invention either explicitly or implicitly. M.P.E.P. 706.02. Because Meyers does not teach every aspect of claims 1 and 3-5 either alone or in combination with the other aspects of the claimed invention, Meyers does not anticipate any of those claims.

For example, independent claim 1 recites an optical element comprising, among other things, "a second optical surface being a refractive surface opposite to the first optical surface" and that "the second edge is positioned at the partition line between the first die and the second die." Meyers does not disclose an optical element as recited in claims 1 at least because Meyers fails to disclose these elements alone or in combination with the other elements of the claim 1.

Meyers discloses a diffractive/refractive hybrid lens 10 for use in visible light camera applications having a convex curved refractive surface 1 and a concave curved diffractive surface 2. (Figs. 1-2; col. 4, line 55 through col. 5, line 12). The lens 10 is manufactured by providing a mold with a refractive portion S1 and another mold with a diffractive surface relief pattern S2. The mold with the diffractive surface relief pattern S2, by virtue of it containing the sprue connected to the various injection molding components, is fixed and does not move during processing. Hence, it is the mold with

the refractive portion S1 that is shiftable and moves relative to the fixed mold during processing. Accordingly, once the shiftable mold is placed against the fixed mold, the optical material is injected between mold surfaces S1 and S2. Once the optical material hardens, the shiftable mold is parted away from the fixed mold as the molded lens and the sprue are also ejected from the fixed mold. The molded lens and the sprue are then removed from the shiftable mold, and the molded lens is then broken off from the rest of the plastic when it is ready for final assembly. (Fig. 24; col. 17, lines 23-38). While it may be conceivable to part the molds such that the molded lens and the sprue are ejected from the shiftable mold and then removed from the fixed mold, this may not be practical as removal of the piece while the sprue is lodged in the fixed mold may be more difficult.

Thus, as set forth above, Meyers discloses that it is the concave curved **diffractive surface 2** that is parted from the fixed mold first. Accordingly, the partition line between the shiftable mold and the fixed mold in Meyers runs over the **diffractive surface** relief pattern S2 of the fixed mold. In fact, Meyers corresponds to Figs. 8-10 of the specification which have been designated as being prior art. In the claimed invention, however, because "the second edge portion is positioned at the partition line between the first die and the second die," as shown in Fig. 3, it is the **refractive surface** that is removed from its mold first, and thus the partition line runs along the interface between the mold and the **refractive surface**.

As set forth on page 2 of the specification, if the partition line runs over the diffractive surface relief pattern as set forth in Meyers, any undesired deviation of either mold perpendicular to the direction of movement during the mold opening process will

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deform the diffractive structure of the plastic lens. If, however, the partition lines runs over the mold with the refractive surface as in the claimed invention, similar deviations of either mold during the mold opening process would primarily affect the refractive surface that, because of its configuration, is less susceptible to deformation.

Accordingly, the diffractive structure of the plastic lens in the claimed invention is more likely to have the desired optical characteristics than the diffractive structure of the plastic lens of the prior art. Accordingly, Meyers does not disclose every aspect of the claimed invention, either individually or in combination with other aspects of the claimed invention, and Applicants respectfully request withdrawal of this rejection.

Furthermore, Applicants assert that the Examiner has not met the burden of providing a *prima facie* case of obviousness in order to modify Meyers, in view of Maruyama, to cure, for example, the aforementioned deficiencies. Accordingly, Applicants additionally assert that because Meyers and Maruyama, whether taken individually or in combination, do not disclose or suggest the claimed invention, Applicants respectfully request the allowance of independent claim 1 and its dependent claims 2-5 and 9.

The Examiner rejected claims 1 and 3-5 under 35 U.S.C. § 103(a) as being unpatentable over Nisper in view of Ueda. Applicants respectfully disagree with the Examiner's arguments and conclusions, and submit that a *prima facie* case of obviousness has not been established.

Applicants respectfully note that "the examiner bears the initial burden, on review of the prior art on any other ground, of presenting a *prima facie* case of unpatentability." In re Oetiker, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992) (Emphasis original). To

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establish a *prima facie* case of unpatentability, three basic criteria must be met. First, the prior art references, when combined, must teach or suggest all of the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Finally, there must be a reasonable expectation of success M.P.E.P. §2143.

Furthermore, the teaching or suggestion to make the claimed combination must be found in the prior art, not in Applicants' disclosure. In Re Vaeck, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991). Additionally, the evidence of a teaching, suggestion, or motivation to combine must be "clear and particular." In Re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999). As will be described below, modifying the cited references is improper.

First of all, the Examiner has failed to show how the prior art references, even if they could properly be combined, teach or suggest all of the claimed subject matter. For example, independent claim 1 recites an optical element comprising, among other things, "a second optical surface being a refractive surface opposite to the first optical surface" wherein "the second edge is positioned at the partition line between the first die and the second die." The prior art references do not disclose these elements, whether considered alone or in combination.

Nisper discloses a cured plastic element 610 made in an injection molding machine that has a molding tool 404 with a microstructure, cover plate 504, mold base 506, ejection pin 508, and port 510. Once the molding tool 404, the cover plate 504, and the mold base 506 are placed together, standard molding materials, for example

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optically clear polycarbonate liquid plastic, may then be injected into the mold cavity. After the plastic has sufficiently hardened, the ejection pin 508 may eject the molded part from the molding tool 404 and cover plate 504 such that the cured plastic element 610 is now solely within the mold base 506. From there the cured plastic element 610 may be removed from the mold base 506 either manually or dynamically. (Figs. 5, 6; col. 7, lines 31-65).

Thus, as set forth above, Nisper discloses that it is the portion of the cured plastic element 610 with the microstructure (the bottom curved surface in Fig. 6), which the Examiner alleges is the **diffractive surface**, that is ejected from the molding tool 404 and cover plate 504 first. Accordingly, the partition line between the molding tool 404 and mold base 506 in Nisper runs over to the portion of the molding tool 404 and/or cover plate 504 with the microstructure, which the Examiner again alleges is the **diffractive surface**. In fact, Nisper also corresponds to Figs. 8-10 of the specification which have been designated as being prior art. In the claimed invention, however, because "the second edge portion is positioned at the partition line between the first die and the second die," as shown in Fig. 3, it is the **refractive surface** that is removed from its mold first, and thus the partition line runs along the interface between the mold and the **refractive surface**. Once again, this distinction is important for the same reasons as stated with regard to the Meyers reference. In addition, Ueda does not cure this deficiency at least because Ueda merely discloses press forming an optical element and because the drawings do not show an interface between two dies. Accordingly, Nisper, either taken alone or in combination with Ueda, does not disclose every aspect of the claimed invention. Applicants assert that the Examiner has not met the first

requirement in making a *prima facie* case of obviousness, and thus respectfully request withdrawal of this rejection.

In addition, Applicants assert that the Examiner has failed to provide a proper motivation for combining Nisper and Ueda. Specifically, the Examiner asserted on pages 7 and 8 of the Office Action that "it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a flange having a flange surface provided around a periphery of the optical element, a first edge portion of the flange surface adjoining to the first optical surface and a second edge portion of the flange surface adjoining to the second optical surface, wherein the second edge is positioned at the partition line between the first die and the second die and the flange surface is parallel to the optical axis, as taught by Ueda et al., in the molded element of Nisper et al, for the purpose of providing a mounting and handling surface for the optical element, thus, improving mounting stability and lessening the changes of spoiling the optical surface due to contact."

Applicants assert that this is an improper conclusory statement which is neither clear and particular, In Re Dembiczak, 175 F.3d at 999, nor found in the prior art, In Re Vaeck, 947 F.2d at 493. It appears instead that the Examiner has merely pieced together various aspects of the present invention from the prior art teachings with an improper hindsight to make an obviousness rejection. The Examiner, however, must read Nisper and Ueda without the hindsight gained from the Applicants' disclosure. When read this way, the alleged combination of Nisper and Ueda teaches away from the claimed invention, as there is no teaching or suggestion in either of these references to modify or combine the teachings in a manner that would result in the claimed

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invention. Specifically, Nisper is directed to a method of **injection molding** plastic (col. 7, lines 38-41) while Ueda is directed a method of **press forming** heated glass (col. 5, lines 8-12). Accordingly, because the Examiner has failed to provide a proper motivation to modify Nisper in view of Ueda, the Examiner has not met the second requirement for a case of *prima face* obviousness, and thus Applicants respectfully request the withdrawal of this rejection.

Furthermore, Applicants assert that the Examiner has not meet the burden of establishing a *prima facie* case of obviousness in order to modify Nisper in view of Ueda, and in further view of Maruyama. Accordingly, Applicants additionally assert that Nisper, Ueda and Maruyama, whether taken individually or in combination, do not disclose or suggest the claimed invention. Applicants respectfully request the allowance of independent claim 1 and its dependent claims 2-5 and 9.

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

The Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

In discussing the specification, claims, abstract, and drawings in this Amendment, it is to be understood that Applicants are in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification or abstract and/or shown in the drawings. Rather, Applicants believe that Applicants are

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entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.


Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: June 24, 2003

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APPENDIX TO AMENDMENT OF JUNE 24, 2003
VERSION WITH MARKINGS TO SHOW CHANGES MADE

AMENDMENTS TO THE TITLE:

[OPTICAL ELEMENT AND MANUFACTURING METHOD] MOLDED OPTICAL
ELEMENT AND MOLDING METHOD

AMENDMENTS TO THE SPECIFICATION

Page 1, second full paragraph, please replace to read:

-An example of the optical element is a plastic lens which is used for an optical system of an optical equipment such as an optical pickup device and a camera. As a plastic lens of this type, there is plastic lens 100 which has on its one side a surface of diffractive structure 100a, as shown in Fig. 7.-

The paragraph bridging pages 9 and 10, please replaced to read:

-The plastic lens representing an optical element in the present embodiment has optical functional section 1a and flange section 1b that is formed on the outer circumference of the optical functional section 1a, as shown in Fig. 6. On the surface on one side of the optical functional section 1a, there is formed diffractive structure 1c that is in a microscopic step-wise shape so that highly accurate and desired optical characteristics may be obtained. Incidentally, though the flange section 1b is provided on the outer circumference of the optical functional section 1a of the plastic lens 1 in the present embodiment, the lens does not need to have the flange section, and it may further be a disk-shaped lens without being limited to a circular lens. In addition, the optical element may be a light-conductive object, without being limited to a plastic lens.-